



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/529,343

03/25/2005

James Hayden Brownell

434817

8895

7590
Curtis A Vock
Lathrop & Gage
4845 Peal East Circle
Suite 300
Boulder, CO 80301

09/21/2007

EXAMINER

STAFFORD, PATRICK

ART UNIT

PAPER NUMBER

2828

MAIL DATE

DELIVERY MODE

09/21/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/529,343

Applicant(s)

BROWNELL, JAMES HAYDEN

Examiner

Patrick Stafford

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-14, 16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) 11-14, 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 3/25/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restriction

Applicant's election with traverse of claims 2-10 in the reply filed on 4 June 2007 is acknowledged. The traversal is on the ground(s) that claims 11-14, 16-17 are amended to incorporate the grating element of claims 2-10. This is not found persuasive because the amended claims directed to a system for generating FIR laser radiation comprise a grating element which does not have a V-groove and vertex to the flat base, as the claims directed to the grating element require.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-5 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer (U.S. Patent 4,852,956, hereafter '956) in view of Walsh (U.S. Patent 5,263,043, hereafter '043).

Claim 2: '956 teaches a grating horn, comprising:

a flat base (col. 11, lines 21-22 and Fig. 5, part 44) and a pair of grating elements attached to the base (col. 11, lines 25-31 and Fig. 5, parts 50 and 52), each of the grating elements being ruled with a grating period (col. 5, lines 16-18), the grating elements oriented in phase and in substantial symmetry about a normal to the flat base (col. 11, lines 54-61).

'956 does not explicitly teach the electron beam interacting with the grating elements produces Terahertz radiation. However, '043 teaches the use of grating elements (col. 4, lines 20-24) interacting with an electron beam producing Terahertz radiation (col. 3, lines 59-62) in order to provide a tunable FEL device. Therefore, it would have been obvious to one of ordinary skill in that art at the time the invention was made to use a grating element interacting with an electron beam producing Terahertz radiation (col. 3, lines 59-62) in order to provide a tunable FEL device.

Claim 3: '956 and '043 teach the grating horn of claim 2. '956 teaches the grating elements forming a V-groove and vertex to the flat base (Fig. 5, formed in between parts 56 and 58).

Claim 4: '956 and '043 teach the grating horn of claim 3. '043 teaches each of the grating elements being ruled perpendicular to a face of the grating element (col. 10, lines 56-59).

Claim 5: '956 and '043 teach the grating horn of claim 3. '956 teaches the vertex intersecting the flat base (Fig. 5, formed in between parts 56 and 58 intersecting base 44).

Claim 7: '956 and '043 teach the grating horn of claim 3. '956 teaches the vertex comprising a flat portion (Fig. 5, formed in between parts 56 and 58).

Claim 8: '956 and '043 teach the grating horn of claim 3. '043 teaches the rulings of the grating elements are parallel to the flat base (col. 11, lines 7-11 and Fig. 9A, part 16).

Claim 9: '956 and '043 teach the grating horn of claim 3. '043 teaches each of the grating elements forms a bevel edge, wherein each of the grating elements is ruled between the bevel edge and the flat base (col. 12, lines 18-24 and Fig. 13A, part 16).

Claim 10: '956 and '043 teach the grating horn of claim 3. '043 teaches each of the grating

Art Unit: 2828

elements comprises a triangle component (col. 8, lines 30-35) and a rectangular component (col. 8, lines 10-16), wherein each of the grating elements is ruled in the triangular and rectangular components and parallel to the flat base (col. 11, lines 7-11 and Fig. 9A, part 16).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer (U.S. Patent 4,852,956, hereafter '956) in view of Walsh (U.S. Patent 5,263,043, hereafter '043) and further in view Hamada et al (U.S. Patent 4,972,075, hereafter '075).

Claim 6: '956 and '043 teach the grating horn of claim 3. They do not explicitly teach the vertex non-intersecting the flat base, wherein rulings of the grating elements extend between the vertex and the flat base. However, '075 teaches the vertex non-intersecting the flat base, wherein rulings of the grating elements extend between the vertex and the flat base (col. 6, lines 35-39) in order to give a sharp moiré pattern. Therefore, it would have been obvious to one of ordinary skill in that art at the time the invention was made to use a grating with the vertex non-intersecting the flat base, wherein rulings of the grating elements extend between the vertex and the flat base in order to give a sharp moiré pattern.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Stafford whose telephone number is (571) 270-1275. The examiner can normally be reached on M-Th 7:30-5 EST.

Art Unit: 2828

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MinSun Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RJ3

PJS

